SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANTS: Horwitz, Marcus A.; Harth, Günter; and Lee, Bai-Yu

(ii) TITLE OF INVENTION: Abundant Extracellular Products and Methods for Their Production and Use

(iii) NUMBER OF SEQUENCES: 159

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(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:
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(B) FILING DATE:
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: US 08/568,357
(B) FILING DATE: 06-DEC-1995

(vii) PRIOR APPLICATION DATA:
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(B) FILING DATE: 31-OCT-1995

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: US 08/447,398
(B) FILING DATE: 23-MAY-1995

(vii) PRIOR APPLICATION DATA:
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(B) FILING DATE: 12-AUG-1994

(vii) PRIOR APPLICATION DATA:
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(B) FILING DATE: 23-NOV-1993

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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 5 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

```
Asn Ser Lys Ser Val
1               5
```

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 5 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Thr Asp Arg Val Ser
1 5

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Ala Arg Ala Val Gly
1 5

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

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(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

```
Thr Glu Lys Thr Pro
1               5
```

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 5 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

```
Asp Pro Glu Pro Ala
1               5
```

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 5 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Phe Ser Arg Pro Gly
1 5

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Phe Ser Arg Pro Gly
1 5

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

08/985,301 - 012597

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

```
Phe Ser Arg Pro Gly
1               5
```

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 5 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

```
Ala Pro Tyr Glu Asn
1               5
```

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 5 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

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(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

```
Ala Pro Lys Thr Tyr
1               5
```

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 5 amino acids
  (B) TYPE: amino acid
  (C) STRANDEDNESS:
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

```
Ala Glu Thr Tyr Leu
1               5
```

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 5 amino acids
  (B) TYPE: amino acid
  (C) STRANDEDNESS:
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

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(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

```
Ala Tyr Pro Ile Thr
1               5
```

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

```
Ala Asp Pro Arg Leu
1               5
```

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

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(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

```
Phe Asp Thr Arg Leu
1               5
```

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

```
Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1               5                   10                  15

Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln Ser Gly Gly
16              20                  25                  30

Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp
31              35                  40
```

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1 5 10 15

Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln Ser Gly Gly
16 20 25 30

Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp
31 35 40

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1 5 10 15

Ala Ser Met Gly Arg Asp Ile
16 20

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 48 amino acids
(B) TYPE: amino acid

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(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

```
Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu Gly
1               5                   10                  15

Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys
16              20                  25                  30

Asp Val Asp Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala
31              35                  40                  45

Glu Arg Thr
46
```

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(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Ala Asp Pro Arg Leu Gln Phe Thr Ala Thr Thr Leu Ser Gly Ala
1 5 10 15

Pro Phe Asp Lys Ala Ser Leu Gln Gly Lys Pro Ala Val Leu Trp
21 20 25 30

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Ala Asp Pro Arg Leu Gln Phe Thr Ala Thr Thr Leu Ser Gly Ala
1 5 10 15

Pro Phe Asp Lys Ala Ser Leu Gln Gly Lys Pro Ala Val Leu Trp
16 20 25 30

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 47 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

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(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Ala Tyr Pro Ile Thr Gly Cys Leu Gly Ser Glu Leu Thr Met Thr
1 5 10 15

Asp Thr Val Gly Gln Val Val Leu Gly Trp Lys Val Ser Asp Leu
16 20 25 30

Phe Lys Ser Thr Ala Val Ile Pro Gly Tyr Thr Val Xaa Glu Gln
31 35 40 45

Gln Ile
46

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 47 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Ala Tyr Pro Ile Thr Asx Lys Leu Gly Ser Glu Leu Thr Met Thr
1 5 10 15

Asp Thr Val Gly Gln Val Val Leu Gly Trp Lys Val Ser Asp Leu
16 20 25 30

Tyr Lys Ser Thr Ala Val Ile Pro Gly Tyr Thr Val Xaa Glu Gln
31 35 40 45

Gln Ile
46

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(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

```
Ala Glu Thr Tyr Leu Pro Asp Leu Asp Trp Asp Tyr Gly Ala Leu
1               5                   10                  15

Glu Pro His Ile Ser Gly Gln
16              20
```

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

```
Ala Pro Lys Thr Tyr Xaa Glu Glu Leu Lys Gly Thr Asp
1               5                   10
```

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(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 60 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

```
Ala Pro Tyr Glu Asn Leu Met Asx Pro Ser Pro Ser Met Gly Arg
1               5                   10                  15

Asp Ile Pro Val Ala Phe Leu Ala Gly Gly Pro His Ala Val Tyr
16              20                  25                  30

Leu Leu Asp Ala Phe Asn Ala Gly Pro Asp Val Ser Asn Trp Val
31              35                  40                  45

Thr Ala Gly Asn Ala Met Met Thr Leu Ala Xaa Lys Gly Ile Cys
46              50                  55                  60
```

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 60 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

```
Ala Pro Tyr Glu Asn Leu Met Val Pro Ser Pro Ser Met Gly Arg
1               5                   10                  15

Asp Ile Pro Val Ala Phe Leu Ala Gly Gly Pro His Ala Val Tyr
16              20                  25                  30

Leu Leu Asp Ala Phe Asn Ala Gly Pro Asp Val Ser Asn Trp Val
31              35                  40                  45

Thr Ala Gly Asn Ala Met Met Thr Leu Ala Xaa Lys Gly Ile Ser
46              50                  55                  60
```

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

```
Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1               5                   10                  15

Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln Ser Gly Gly
16              20                  25                  30

Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp
31              35                  40
```

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

```
Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1               5                   10                  15

Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln Ser Gly Gly
16              20                  25                  30

Asn Asn Ser Pro Xaa Leu Tyr Leu Leu Asp
31              35                  40
```

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

```
Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1               5                   10                  15

Ala Xaa Met Gly Arg Asp Ile
16              20
```

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(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

```
Asp Pro Glu Pro Ala Pro Pro Val Pro Asp Asp Ala Ala Ser Pro
1               5                   10                  15

Pro Asp Asp Ala Ala Ala Pro Pro Ala Pro Ala Asp Pro Pro Xaa
16              20                  25                  30
```

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

```
Thr Glu Lys Thr Pro Asp Asp Val Phe Lys Leu Ala Lys Asp Glu
1               5                   10                  15

Lys Val Leu Tyr Leu
16              20
```

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 6 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

```
Ala Arg Ala Val Gly Ile
1               5
```

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

08765337.012197

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

```
Thr Asp Arg Val Ser Val Gly Asn
1               5
```

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

```
Asn Ser Lys Ser Val Asn Ser Phe Gly Ala His Asp Thr Leu Lys
1               5                   10                  15

Val Xaa Glu Arg Lys Arg Gln
16              20
```

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 978 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

```
ATGACAGACG TGAGCCGAAA GATTCGAGCT TGGGGACGCC GATTGATGAT   50

CGGCACGGCA GCGGCTGTAG TCCTTCCGGG CCTGGTGGGG CTTGCCGGCG  100

GAGCGGCAAC CGCGGGCGCG TTCTCCCGGC CGGGGCTGCC GGTCGAGTAC  150

CTGCAGGTGC CGTCGCCGTC GATGGGCCGC GACATCAAGG TTCAGTTCCA  200
```

GAGCGGTGGG AACAACTCAC CTGCGGTTTA TCTGCTCGAC GGCCTGCGCG 250

CCCAAGACGA CTACAACGGC TGGGATATCA ACACCCCGGC GTTCGAGTGG 300

TACTACCAGT CGGGACTGTC GATAGTCATG CCGGTCGGCG GGCAGTCCAG 350

CTTCTACAGC GACTGGTACA GCCCGGCCTG CGGTAAGGCT GGCTGCCAGA 400

CTTACAAGTG GGAAACCTTC CTGACCAGCG AGCTGCCGCA ATGGTTGTCC 450

GCCAACAGGG CCGTGAAGCC CACCGGCAGC GCTGCAATCG GCTTGTCGAT 500

GGCCGGCTCG TCGGCAATGA TCTTGGCCGC CTACCACCCC CAGCAGTTCA 550

TCTACGCCGG CTCGCTGTCG GCCCTGCTGG ACCCCTCTCA GGGGATGGGG 600

CCTAGCCTGA TCGGCCTCGC GATGGGTGAC GCCGGCGGTT ACAAGGCCGC 650

AGACATGTGG GGTCCCTCGA GTGACCCGGC ATGGGAGCGC AACGACCCTA 700

CGCAGCAGAT CCCCAAGCTG GTCGCAAACA ACACCCGGCT ATGGGTTTAT 750

TGCGGGAACG GCACCCCGAA CGAGTTGGGC GGTGCCAACA TACCCGCCGA 800

GTTCTTGGAG AACTTCGTTC GTAGCAGCAA CCTGAAGTTC CAGGATGCGT 850

ACAACGCCGC GGGCGGGCAC AACGCCGTGT TCAACTTCCC GCCCAACGGC 900

ACGCACAGCT GGGAGTACTG GGGCGCTCAG CTCAACGCCA TGAAGGGTGA 950

CCTGCAGAGT TCGTTAGGCG CCGGCTGA 978

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1017 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

ATGCAGCTTG TTGACAGGGT TCGTGGCGCC GTCACGGGTA TGTCGCGTCG 50

ACTCGTGGTC GGGGCCGTCG GCGCGGCCCT AGTGTCGGGT CTGGTCGGCG 100

CCGTCGGTGG CACGGCGACC GCGGGGGCAT TTTCCCGGCC GGGCTTGCCG 150

GTGGAGTACC TGCAGGTGCC GTCGCCGTCG ATGGGCCGTG ACATCAAGGT 200

CCAATTCCAA AGTGGTGGTG CCAACTCGCC CGCCCTGTAC CTGCTCGACG 250

GCCTGCGCGC GCAGGACGAC TTCAGCGGCT GGGACATCAA CACCCCGGCG 300

TTCGAGTGGT ACGACCAGTC GGGCCTGTCG GTGGTCATGC CGGTGGGTGG 350

CCAGTCAAGC TTCTACTCCG ACTGGTACCA GCCCGCCTGC GGCAAGGCCG 400

GTTGCCAGAC TTACAAGTGG GAGACCTTCC TGACCAGCGA GCTGCCGGGG 450

TGGCTGCAGG CCAACAGGCA CGTCAAGCCC ACCGGAAGCG CCGTCGTCGG 500

TCTTTCGATG GCTGCTTCTT CGGCGCTGAC GCTGGCGATC TATCACCCCC 550

AGCAGTTCGT CTACGCGGGA GCGATGTCGG GCCTGTTGGA CCCCTCCCAG 600

GCGATGGGTC CCACCCTGAT CGGCCTGGCG ATGGGTGACG CTGGCGGCTA 650

CAAGGCCTCC GACATGTGGG GCCCGAAGGA GGACCCGGCG TGGCAGCGCA 700

ACGACCCGCT GTTGAACGTC GGGAAGCTGA TCGCCAACAA CACCCGCGTC 750

TGGGTGTACT GCGGCAACGG CAAGCCGTCG GATCTGGGTG GCAACAACCT 800

GCCGGCCAAG TTCCTCGAGG GCTTCGTGCG GACCAGCAAC ATCAAGTTCC 850

AAGACGCCTA CAACGCCGGT GGCGGCCACA ACGGCGTGTT CGACTTCCCG 900

GACAGCGGTA CGCACAGCTG GGAGTACTGG GGCGCGCAGC TCAACGCTAT 950

GAAGCCCGAC CTGCAACGGG CACTGGGTGC CACGCCCAAC ACCGGGCCCG 1000

CGCCCCAGGG CGCCTAG 1017

08785533.012197

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu Gln Val Pro Ser
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

Leu Pro Val Glu Tyr Leu Gln Val Pro Ser Pro Ser Met Gly Arg
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

```
Leu Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val Gln
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

```
Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln Ser Gly Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

```
Asp Ile Lys Val Gln Phe Gln Ser Gly Gly Asn Asn Ser Pro Ala
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

```
Phe Gln Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp
1               5                   10                  15
```

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(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

```
Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp Gly Leu Arg Ala Gln
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

```
Val Tyr Leu Leu Asp Gly Leu Arg Ala Gln Asp Asp Tyr Asn Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

Gly	Leu	Arg	Ala	Gln	Asp	Asp	Tyr	Asn	Gly	Trp	Asp	Ile	Asn	Thr
1				5					10					15

(2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Asp	Asp	Tyr	Asn	Gly	Trp	Asp	Ile	Asn	Thr	Pro	Ala	Phe	Glu	Trp
1				5					10					15

(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

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```
Trp Asp Ile Asn Thr Pro Ala Phe Glu Trp Tyr Tyr Gln Ser Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

```
Pro Ala Phe Glu Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met
1               5                   10                  15
```

08765533.012197

(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

```
Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly Gln
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

```
Leu Ser Ile Val Met Pro Val Gly Gly Gln Ser Ser Phe Tyr Ser
1               5                   10                  15
```

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(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

```
Pro Val Gly Gly Gln Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

```
Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

```
Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala Gly Cys Gln Thr Tyr
1               5                   10                  15
```

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(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

```
Ala Cys Gly Lys Ala Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe
1               5                   10                  15
```

08785533.012197

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

```
Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

```
Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro Gln Trp Leu Ser
1               5                   10                  15
```

08785533.012197

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

```
Leu Thr Ser Glu Leu Pro Gln Trp Leu Ser Ala Asn Arg Ala Val
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

```
Pro Gln Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

```
Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala Ile Gly Leu
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

```
Lys Pro Thr Gly Ser Ala Ala Ile Gly Leu Ser Met Ala Gly Ser
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:61:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

```
Ala Ala Ile Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

```
Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr His Pro
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:63:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

```
Ser Ala Met Ile Leu Ala Ala Tyr His Pro Gln Gln Phe Ile Tyr
1               5                   10                  15
```

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(2) INFORMATION FOR SEQ ID NO:64:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

```
Ala Ala Tyr His Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser
1               5                   10                  15
```

08785333.012197

(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

```
Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp Pro
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:66:

(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 15 amino acids
  (B) TYPE: amino acid
  (C) STRANDEDNESS:
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

```
Ala Gly Ser Leu Ser Ala Leu Leu Asp Pro Ser Gln Gly Met Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:67:

(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 15 amino acids
  (B) TYPE: amino acid
  (C) STRANDEDNESS:
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

```
Ala Leu Leu Asp Pro Ser Gln Gly Met Gly Pro Ser Leu Ile Gly
1               5                   10                  15
```

08765533.012197

(2) INFORMATION FOR SEQ ID NO:68:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

```
Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp
1               5                   10                  15
```

08786533.012197

(2) INFORMATION FOR SEQ ID NO:69:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

```
Pro Ser Leu Ile Gly Leu Ala Met Gly Asp Ala Gly Gly Tyr Lys
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:70:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

```
Leu Ala Met Gly Asp Ala Gly Gly Tyr Lys Ala Ala Asp Met Trp
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

```
Ala Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp
1               5                   10                  15
```

08765533.021097

(2) INFORMATION FOR SEQ ID NO:72:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

```
Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro Ala Trp Glu Arg
1               5                   10                  15
```

08765385.012197

(2) INFORMATION FOR SEQ ID NO:73:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

```
Gly Pro Ser Ser Asp Pro Ala Trp Glu Arg Asn Asp Pro Thr Gln
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:74:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

Pro Ala Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:75:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala Asn Asn Thr
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:76:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:

```
Gln Ile Pro Lys Leu Val Ala Asn Asn Thr Arg Leu Trp Val Tyr
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:77:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:

```
Val Ala Asn Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:78:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:

```
Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu Leu Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:79:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:

```
Cys Gly Asn Gly Thr Pro Asn Glu Leu Gly Gly Ala Asn Ile Pro
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:80:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:

```
Pro Asn Glu Leu Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:81:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

```
Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg Ser
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:82:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

```
Ala Glu Phe Leu Glu Asn Phe Val Arg Ser Ser Asn Leu Lys Phe
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:83:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

```
Asn Phe Val Arg Ser Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn
1               5                   10                  15
```

08785533.012197

(2) INFORMATION FOR SEQ ID NO:84:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly Gly His
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:85:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

Gln Asp Ala Tyr Asn Ala Ala Gly Gly His Asn Ala Val Phe Asn
1 5 10 15

08785335.012197

(2) INFORMATION FOR SEQ ID NO:86:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

```
Ala Ala Gly Gly His Asn Ala Val Phe Asn Phe Pro Pro Asn Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:87:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:

```
Asn Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu
1               5                   10                  15
```

08765533.012197

(2) INFORMATION FOR SEQ ID NO:88:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88:

```
Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr Trp Gly Ala Gln
1               5                   10                  15
```

08765533.012197

(2) INFORMATION FOR SEQ ID NO:89:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:

```
Thr His Ser Trp Glu Tyr Trp Gly Ala Gln Leu Asn Ala Met Lys
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:90:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

```
Tyr Trp Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:91:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: C-terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:91:

```
Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu Gly Ala Gly
1               5                   10                  15
```

(2) INFORMATION FOR SEQ ID NO:92:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 480 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:92:

ATGAAGCTCA CCACAATGAT CAAGACGGCA GTAGCGGTCG TGGCCATGGC 50

GGCCATCGCG ACCTTTGCGG CACCGGTCGC GTTGGCTGCC TATCCCATCA 100

CCGGAAAACT TGGCAGTGAG CTAACGATGA CCGACACCGT TGGCCAAGTC 150

GTGCTCGGCT GGAAGGTCAG TGATCTCAAA TCCAGCACGG CAGTCATCCC 200

CGGCTATCCG GTGGCCGGCC AGGTCTGGGA GGCCACTGCC ACGGTCAATG 250

CGATTCGCGG CAGCGTCACG CCCGCGGTCT CGCAGTTCAA TGCCCGCACC 300

GCCGACGGCA TCAACTACCG GGTGCTGTGG CAAGCCGCGG GCCCCGACAC 350

CATTAGCGGA GCCACTATCC CCCAAGGCGA ACAATCGACC GGCAAAATCT 400

ACTTCGATGT CACCGGCCCA TCGCCAACCA TCGTCGCGAT GAACAACGGC 450

ATGGAGGATC TGCTGATTTG GGAGCCGTAG 480

08759533.012197

(2) INFORMATION FOR SEQ ID NO:93:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1437 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:93:

GTGACGGAAA AGACGCCCGA CGACGTCTTC AAACTTGCCA AGGACGAGAA 50

GGTCGAATAT GTCGACGTCC GGTTCTGTGA CCTGCCTGGC ATCATGCAGC 100

ACTTCACGAT TCCGGCTTCG GCCTTTGACA AGAGCGTGTT TGACGACGGC 150

TTGGCCTTTG ACGGCTCGTC GATTCGCGGG TTCCAGTCGA TCCACGAATC 200

CGACATGTTG CTTCTTCCCG ATCCCGAGAC GGCGCGCATC GACCCGTTCC 250

GCGCGGCCAA GACGCTGAAT ATCAACTTCT TTGTGCACGA CCCGTTCACC 300

CTGGAGCCGT ACTCCCGCGA CCCGCGCACC ATCGCCCGCA AGGCCGAGAA 350

CTACCTGATC AGCACTGGCA TCGCCGACAC CGCATACTTC GGCGCCGAGG 400

CCGAGTTCTA CATTTTCGAT TCGGTGAGCT TCGACTCGCG CGCCAACGGC 450

TCCTTCTACG AGGTGGACGC CATCTCGGGG TGGTGGAACA CCGGCGCGGC 500

GACCGAGGCC GACGGCAGTC CCAACCGGGG CTACAAGGTC CGCCACAAGG 550

GCGGGTATTT CCCAGTGGCC CCCAACGACC AATACGTCGA CCTGCGCGAC 600

AAGATGCTGA CCAACCTGAT CAACTCCGGC TTCATCCTGG AGAAGGGCCA 650

CCACGAGGTG GGCAGCGGCG GACAGGCCGA GATCAACTAC CAGTTCAATT 700

CGCTGCTGCA CGCCGCCGAC GACATGCAGT TGTACAAGTA CATCATCAAG 750

AACACCGCCT GGCAGAACGG CAAAACGGTC ACGTTCATGC CCAAGCCGCT 800

GTTCGGCGAC AACGGGTCCG GCATGCACTG TCATCAGTCG CTGTGGAAGG 850

ACGGGGCCCC GCTGATGTAC GACGAGACGG GTTATGCCGG TCTGTCGGAC 900

ACGGCCCGTC ATTACATCGG CGGCCTGTTA CACCACGCGC CGTCGCTGCT 950

GGCCTTCACC AACCCGACGG TGAACTCCTA CAAGCGGCTG GTTCCCGGTT 1000

ACGAGGCCCC GATCAACCTG GTCTATAGCC AGCGCAACCG GTCGGCATGC 1050

GTGCGCATCC CGATCACCGG CAGCAACCCG AAGGCCAAGC GGCTGGAGTT 1100

CCGAAGCCCC GACTCGTCGG GCAACCCGTA TCTGGCGTTC TCGGCCATGC 1150

TGATGGCAGG CCTGGACGGT ATCAAGAACA AGATCGAGCC GCAGGCGCCC 1200

GTCGACAAGG ATCTCTACGA GCTGCCGCCG GAAGAGGCCG CGAGTATCCC 1250

GCAGACTCCG ACCCAGCTGT CAGATGTGAT CGACCGTCTC GAGGCCGACC 1300

ACGAATACCT CACCGAAGGA GGGGTGTTCA CAAACGACCT GATCGAGACG 1350

TGGATCAGTT TCAAGCGCGA AAACGAGATC GAGCCGGTCA ACATCCGGCC 1400

GCATCCCTAC GAATTCGCGC TGTACTACGA CGTTTAA 1437

08786533.012197

(2) INFORMATION FOR SEQ ID NO:94:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 687 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:94:

```
GTGCGCATCA AGATCTTCAT GCTGGTCACG GCTGTCGTTT TGCTCTGTTG      50
TTCGGGTGTG GCCACGGCCG CGCCCAAGAC CTACTGCGAG GAGTTGAAAG     100
GCACCGATAC CGGCCAGGCG TGCCAGATTC AAATGTCCGA CCCGGCCTAC     150
AACATCAACA TCAGCCTGCC CAGTTACTAC CCCGACCAGA AGTCGCTGGA     200
AAATTACATC GCCCAGACGC GCGACAAGTT CCTCAGCGCG GCCACATCGT     250
CCACTCCACG CGAAGCCCCC TACGAATTGA ATATCACCTC GGCCACATAC     300
CAGTCCGCGA TACCGCCGCG TGGTACGCAG GCCGTGGTGC TCAAGGTCTA     350
CCAGAACGCC GGCGGCACGC ACCCAACGAC CACGTACAAG GCCTTCGATT     400
GGGACCAGGC CTATCGCAAG CCAATCACCT ATGACACGCT GTGGCAGGCT     450
GACACCGATC CGCTGCCAGT CGTCTTCCCC ATTGTGCAAG GTGAACTGAG     500
CAAGCAGACC GGACAACAGG TATCGATAGC GCCGAATGCC GGCTTGGACC     550
CGGTGAATTA TCAGAACTTC GCAGTCACGA ACGACGGGGT GATTTTCTTC     600
TTCAACCCGG GGGAGTTGCT GCCCGAAGCA GCCGGCCCAA CCCAGGTATT     650
GGTCCCACGT TCCGCGATCG ACTCGATGCT GGCCTAG              687
```

(2) INFORMATION FOR SEQ ID NO:95:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 900 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: not relevant

(ii) MOLECULE TYPE: DNA (genomic)

08765354 .012197

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:95:

```
ATGAAGGGTC GGTCGGCGCT GCTGCGGGCG CTCTGGATTG CCGCACTGTC     50
ATTCGGGTTG GGCGGTGTCG CGGTAGCCGC GGAACCCACC GCCAAGGCCG    100
CCCCATACGA GAACCTGATG GTGCCGTCGC CCTCGATGGG CCGGGACATC    150
CCGGTGGCCT TCCTAGCCGG TGGGCCGCAC GCGGTGTATC TGCTGGACGC    200
CTTCAACGCC GGCCCGGATG TCAGTAACTG GGTCACCGCG GGTAACGCGA    250
TGAACACGTT GGCGGGCAAG GGGATTTCGG TGGTGGCACC GGCCGGTGGT    300
GCGTACAGCA TGTACACCAA CTGGGAGCAG GATGGCAGCA AGCAGTGGGA    350
CACCTTCTTG TCCGCTGAGC TGCCCGACTG GCTGGCCGCT AACCGGGGCT    400
TGGCCCCCGG TGGCCATGCG GCCGTTGGCG CCGCTCAGGG CGGTTACGGG    450
GCGATGGCGC TGGCGGCCTT CCACCCCGAC CGCTTCGGCT TCGCTGGCTC    500
GATGTCGGGC TTTTTGTACC CGTCGAACAC CACCACCAAC GGTGCGATCG    550
CGGCGGGCAT GCAGCAATTC GGCGGTGTGG ACACCAACGG AATGTGGGGA    600
GCACCACAGC TGGGTCGGTG GAAGTGGCAC GACCCGTGGG TGCATGCCAG    650
CCTGCTGGCG CAAAACAACA CCCGGGTGTG GGTGTGGAGC CCGACCAACC    700
CGGGAGCCAG CGATCCCGCC GCCATGATCG GCCAAGCCGC CGAGGCGATG    750
GGTAACAGCC GCATGTTCTA CAACCAGTAT CGCAGCGTCG GCGGGCACAA    800
CGGACACTTC GACTTCCCAG CCAGCGGTGA CAACGGCTGG GGCTCGTGGG    850
CGCCCCAGCT GGGCGCTATG TCGGGCGATA TCGTCGGTGC GATCCGCTAA    900
```

(2) INFORMATION FOR SEQ ID NO:96:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-terminal

08785538.012197

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:96:

F S R P G L P V E Y L Q V P S

(2) INFORMATION FOR SEQ ID NO:97:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:97:

L P V E Y L Q V P S P S M G R

(2) INFORMATION FOR SEQ ID NO:98:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

08785533.012197

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:98:

L Q V P S P S M G R D I K V Q

(2) INFORMATION FOR SEQ ID NO:99:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:99:

P S M G R D I K V Q F Q S G G

(2) INFORMATION FOR SEQ ID NO:100:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:100:

D I K V Q F Q S G G A N S P

(2) INFORMATION FOR SEQ ID NO:101:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:101:

F Q S G G A N S P A L Y L L D

(2) INFORMATION FOR SEQ ID NO:102:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:102:

A N S P A L Y L L D G L R A Q

(2) INFORMATION FOR SEQ ID NO:103:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids

08786533.012197

(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:103:

L Y L L D G L R A Q D D F S G

(2) INFORMATION FOR SEQ ID NO:104:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:104:

G L R A Q D D F S G W D I N T

(2) INFORMATION FOR SEQ ID NO:105:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

08765533.012197

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:105:

D D F S G W D I N T P A F E W

(2) INFORMATION FOR SEQ ID NO:106:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:106:

W D I N T P A F E W Y D Q S G

(2) INFORMATION FOR SEQ ID NO:107:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:107:

P A F E W Y D Q S G L S V V M

(2) INFORMATION FOR SEQ ID NO:108:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:108:

Y D Q S G L S V V M P V G G Q

(2) INFORMATION FOR SEQ ID NO:109:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:109:

L S V V M P V G G Q S S F Y S

(2) INFORMATION FOR SEQ ID NO:110:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 15 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:110:

P V G G Q S S F Y S D W Y Q P

(2) INFORMATION FOR SEQ ID NO:111:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 15 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

08765533.012197

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:111:

S S F Y S D W Y Q P A C G K A

(2) INFORMATION FOR SEQ ID NO:112:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:112:

D W Y Q P A C G K A G C Q T Y

(2) INFORMATION FOR SEQ ID NO:113:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:113:

A C G K A G C Q T Y K W E T F

(2) INFORMATION FOR SEQ ID NO:114:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:114:

G C Q T Y K W E T F L T S E LK Y K W E T F

08785533.012197

(2) INFORMATION FOR SEQ ID NO:115:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:115:
K W E T F L T S E L P G W L Q

(2) INFORMATION FOR SEQ ID NO:116:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid

(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:116:

L T S E L P G W L Q A N R H V

(2) INFORMATION FOR SEQ ID NO:117:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:117:

P G W L Q A N R H V K P T G S

(2) INFORMATION FOR SEQ ID NO:118:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:118:

A N R H V K P T G S A V V G LK

(2) INFORMATION FOR SEQ ID NO:119:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:119:

A P T G S A V V G L S M A A S

(2) INFORMATION FOR SEQ ID NO:120:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

08785533.012197

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:120:

A V V G L S M A A S S A L T L

(2) INFORMATION FOR SEQ ID NO:121:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:121:

S M A A S S A L T L A I Y H P

(2) INFORMATION FOR SEQ ID NO:122:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*

08765335.012197

(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:122:

S A L T L A I Y H P Q Q F V Y

(2) INFORMATION FOR SEQ ID NO:123:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:123:

A I Y H P Q Q F V Y A G A M S

(2) INFORMATION FOR SEQ ID NO:124:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:124:

08/765,333 . 012197

Q Q F V Y A G A M S G L L D P

(2) INFORMATION FOR SEQ ID NO:125:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:125:

A G A M S G L L D P S Q A M G

(2) INFORMATION FOR SEQ ID NO:126:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:126:

G L L D P S Q A M G P T L I G

(2) INFORMATION FOR SEQ ID NO:127:

08758533.012197

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 15 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:127:

S Q A M G P T L I G L A M G DP

(2) INFORMATION FOR SEQ ID NO:128:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 15 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: *Mycobacterium tuberculosis*
    (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:128:

S T L I G L A M G D A G G Y K

(2) INFORMATION FOR SEQ ID NO:129:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 15 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS:

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:129:

L A M G D A G G Y K A S D M W

(2) INFORMATION FOR SEQ ID NO:130:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:130:

A G G Y K A S D M W G P K E D

(2) INFORMATION FOR SEQ ID NO:131:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

08753383.012197

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:131:

A S D M W G P K E D P A W Q R

(2) INFORMATION FOR SEQ ID NO:132:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:132:

G P K E D P A W Q R N D P L L

(2) INFORMATION FOR SEQ ID NO:133:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

08785331.012197

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:133:

P A W Q R N D P L L N V G K L

(2) INFORMATION FOR SEQ ID NO:134:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:134:

N D P L L N V G K L I A N N T

(2) INFORMATION FOR SEQ ID NO:135:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*

08765338.012197

(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:135:

N V G K L I A N N T R V W V Y

(2) INFORMATION FOR SEQ ID NO:136:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:136:

I A N N T R V W V Y C G N G K

(2) INFORMATION FOR SEQ ID NO:137:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:137:

R V W V Y C G N G K P S D L G

(2) INFORMATION FOR SEQ ID NO:138:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:138:

C G N G K P S D L G G N N L P

(2) INFORMATION FOR SEQ ID NO:139:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:139:

P S D L G G N N L P A K F L E

(2) INFORMATION FOR SEQ ID NO:140:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:140:

G N N L P A K F L E G F V R TA

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(2) INFORMATION FOR SEQ ID NO:141:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:141:

G K F L E G F V R T S N I K F

(2) INFORMATION FOR SEQ ID NO:142:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids

(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:142:

G F V R T S N I K F Q D A Y N

08765933.012197

(2) INFORMATION FOR SEQ ID NO:143:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:143:

S N I K F Q D A Y N A G G G H

(2) INFORMATION FOR SEQ ID NO:144:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:144:

Q D A Y N A G G G H N G V F D

(2) INFORMATION FOR SEQ ID NO:145:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:145:

A G G G H N G V F D F P D S G

(2) INFORMATION FOR SEQ ID NO:146:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

08758533.012197

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:146:

N G V F D F P D S G T H S W E

(2) INFORMATION FOR SEQ ID NO:147:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:147:

F P D S G T H S W E Y W G A Q

(2) INFORMATION FOR SEQ ID NO:148:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:148:

T H S W E Y W G A Q L N A M K

(2) INFORMATION FOR SEQ ID NO:149:

(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 15 amino acids
  (B) TYPE: amino acid
  (C) STRANDEDNESS:
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:149:

Y W G A Q L N A M K P D L Q R

08785533.012197

(2) INFORMATION FOR SEQ ID NO:150:

(i) SEQUENCE CHARACTERISTICS:
  (A) LENGTH: 15 amino acids
  (B) TYPE: amino acid
  (C) STRANDEDNESS:
  (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
  (A) ORGANISM: *Mycobacterium tuberculosis*
  (B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:150:

L N A M K P D L Q R A L G A T

(2) INFORMATION FOR SEQ ID NO:151:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:151:

P D L Q R A L G A T P N T G P

(2) INFORMATION FOR SEQ ID NO:152:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: C-Terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:152:

A L G A T P N T G P A P Q G A

08795533.012197

(2) INFORMATION FOR SEQ ID NO:153:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: N-Terminal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:153:

F S R P G L P V E Y L Q V P S P S M

(2) INFORMATION FOR SEQ ID NO:154:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:154:

D I K V Q F Q S G G A N S P A L

(2) INFORMATION FOR SEQ ID NO:155:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids

(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:155:

P V G G Q S S F Y S D W Y Q P A C

08789533 . 012197

(2) INFORMATION FOR SEQ ID NO:156:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:156:

S M A A S S A L T L A I Y H P Q Q

(2) INFORMATION FOR SEQ ID NO:157:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:157:

P Q Q F V Y A G A M S G L L D P S Q

(2) INFORMATION FOR SEQ ID NO:158:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:158:

C G N G K P S D L G G N N L P A K

(2) INFORMATION FOR SEQ ID NO:159:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

08/865337.012197

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:159:

F Q D A Y N A G G G H N G V F D

(2) INFORMATION FOR SEQ ID NO:160:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: Internal

(vi) ORIGINAL SOURCE:
(A) ORGANISM: *Mycobacterium tuberculosis*
(B) STRAIN: Erdman

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:160:

P D L Q R A L G A T P N T G

08785333.012197